$\Rightarrow I(\frac{1}{2},0,0)$;$O(\frac{1}{2},\frac{1}{2},\frac{1}{2})$;$J(\frac{1}{2},0,\frac{1}{2})$ et $K(\frac{1}{2},\frac{1}{2},0)$

$$\overrightarrow{IO}\begin{pmatrix}0\\\frac{1}{2}\\\frac{1}{2}\end{pmatrix};\overrightarrow{IJ}\begin{pmatrix}0\\0\\\frac{1}{2}\end{pmatrix};\overrightarrow{IK}\begin{pmatrix}0\\\frac{1}{2}\\0\end{pmatrix}\Rightarrow \overrightarrow{IO}=\overrightarrow{IJ}+\overrightarrow{IK}\Rightarrow \overrightarrow{IO},\overrightarrow{IJ}\ et\ \overrightarrow{IK}\ sont\ coplanaires$$

et par suite les points O,I,J et K sont coplanaires

2)

$$\left.\begin{array}{l}\overrightarrow{IO}=\overrightarrow{IJ}+\overrightarrow{IK}\Rightarrow OKIJ\ est\ un\ parallè\log ramme\\ IJ=IK=\frac{1}{2}\\ \overrightarrow{IJ}.\overrightarrow{IK}=0\Rightarrow \overrightarrow{IJ}\perp\overrightarrow{IK}\end{array}\right\}\Rightarrow OKIJ\ est\ un\ carré$$

3)

$$V=\frac{1}{3}\left|\left(\overrightarrow{IJ}\wedge\overrightarrow{IK}\right).\overrightarrow{IB}\right| \quad or\ \overrightarrow{IJ}\wedge\overrightarrow{IK}\begin{pmatrix}-\frac{1}{4}\\0\\0\end{pmatrix}\ et\ \overrightarrow{IB}\begin{pmatrix}\frac{1}{2}\\0\\0\end{pmatrix}$$

$$\Rightarrow V=\frac{1}{3}.\left|-\frac{1}{8}\right|=\frac{1}{24}(u.v)$$

Qarray.tn -Aqra Blech- Qarray.tn